Network Camera

IP3132

User's Manual

User's Manual

Before You Use

Surveillance devices may be prohibited by law in your country. Though Network Camera is not only a high performance web equipped camera but also a flexible surveillance system, ensure that the operation of such devices are legal before installing this unit for surveillance.

It is important to carefully check the contents with the "Package Contents" chapter after opening the package. Fully read and follow the “Installation” chapter to prevent damage caused by abnormal usage and reduce most problems during usage.

Basically Network Camera is a network device and should be easy to use for those who already have basic network knowledge. If there is a system error and it does not recover easily due to erroneous configuration, refer to the appendix "Troubleshooting” for appropriate operation.

Network Camera has been designed to build various applications for video sharing, general security or demonstration purposes. Understanding the meaning of each parameter in “How to Use” chapter can best utilize Network Camera and ensure correct operations. To those creative and professional developers, chapter of "URL Commands of Network Camera" will be a very helpful reference to customize existing homepages or integrating with current web server.

Those paragraphs preceded by should be fully understood and cautioned. Ignoring the warnings may result in serious hazards.

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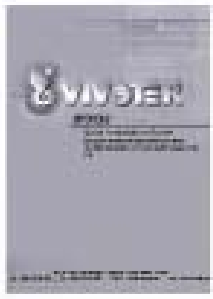
Package Contents

Network Camera IP3132

Software CD

Power adapter

Quick installation guide



Camera stand

Warranty card

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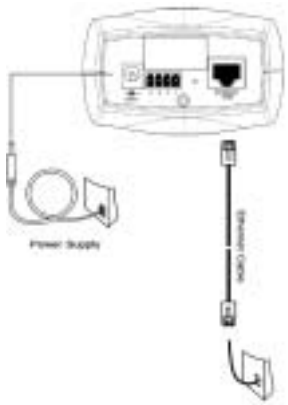
Installation

Hardware installation



All necessary accessories can be found in the product package except for the Ethernet cable that depends on the user's environment. The Ethernet cable should meet UTP category 5 that cannot exceed 100 meters.

Connect the jack of the power adapter to Network Camera prior to plugging the utility end into the utility power socket. It will reduce accidental electric surge shock.

As soon as the power adapter is plugged into the utility socket, the front LED will switch between green and red for several times. After passing the self-test, the LED will shut off and Network Camera will standby for software installation. Otherwise refer to Appendix A for troubleshooting.

Network Camera provides a general I/O terminal block with one digital input and one relay switch for device control. Pin 1 and pin 2 can be connected to an external sensor and the state of voltage will be monitored from the initial state 'LOW'. The relay switch of pin 3 and pin 4 can be used to turn on or off the external device.

Consult with the dealer of the peripherals for correct installation.

1	DI-	INPUT (Initial state of DI is low)
2	DI+	INPUT (Max. 50mA, 12VDC)
3	SW_COMMON	OUTPUT (open from SW_OPEN at initial state)
		(close with SW_OPEN when set DO to ON)
4	SW_NOPEN	OUTPUT (Max. 1A, 24VDC or 0.5A, 125VAC)

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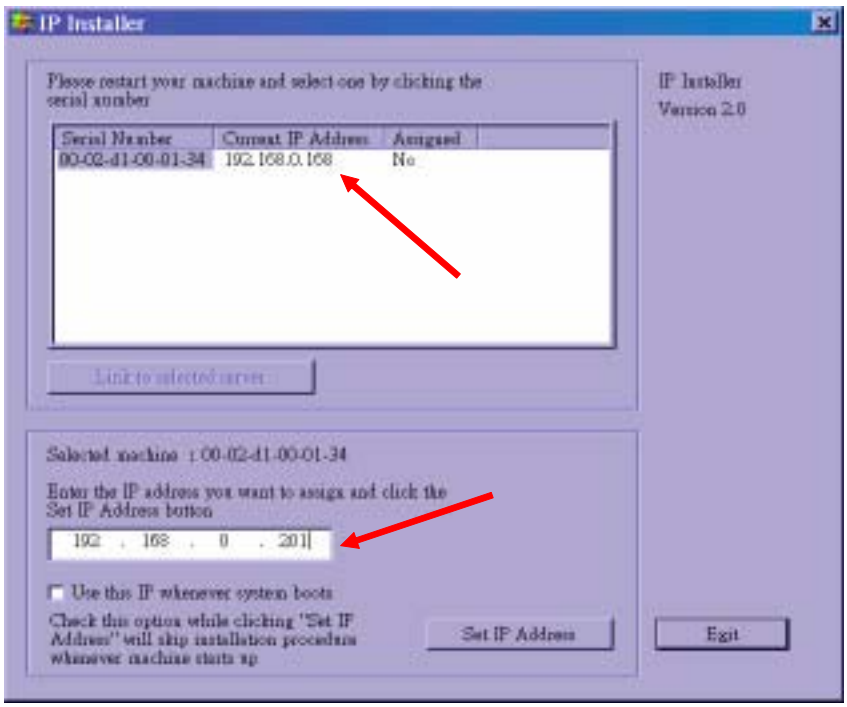
Software installation

In the following content, "user" refers to those who can access Network Camera and "administrator" refers to the supervisor who can configure Network Camera and grant users access.

When completing the hardware installation, administrators need to run the Installer program included in the product CDROM to locate the newly installed Network Cameras. Any Network Camera standby for software installation will be captured by the Installer program. Therefore there may be several entries shown in the window. Administrators may differentiate the Network Cameras with the serial number and click on the entry with "Assigned" field labeled "No" to perform software installation. The serial number is printed on the labels on the carton and the rear panel of Network Camera body.


IP Installer
Please restart your machine and select one by clicking the serial number
IP Installer
Version 2.0
Serial Number
Current IP Address
Assigned
00-02-d1-00-01-34
192.168.0.168
No
Selected machine : 00-02-d1-00-01-34
Enter the IP address you want to assign and click the Set IP Address button
192 . 168 . 0 . 201
Use this IP whenever system boots
Check this option while clicking "Set IP Address" will skip installation procedure whenever machine starts up
Set IP Address
Exit

The IP address shown in "Current IP Address" field depends on the local network. It may get from the DHCP server for the administrator's reference. If there is no DHCP server, administrators can choose any neighbor IP address of the PC. The Installer program will check the IP address automatically; there will be a warning message if it conflicts with others. If administrators want to use another IP address, modify the IP address text field.

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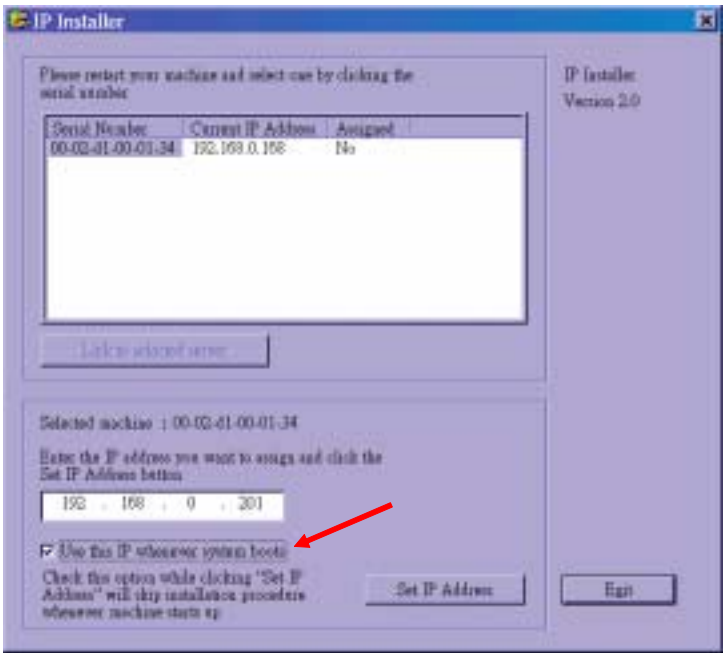
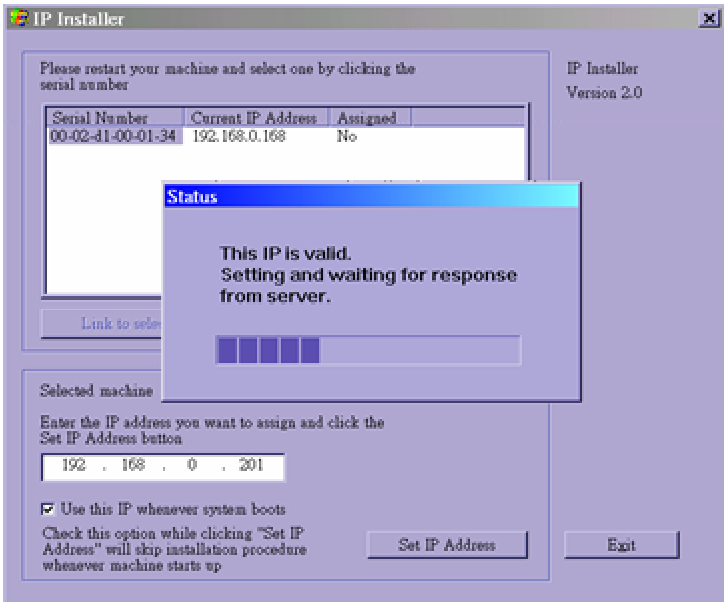
If the administrator wants to fix the IP address of the unit, check the option "Use this IP whenever system boots" to skip future installation procedures. Otherwise the unit will need installation whenever it is restarted.




IP Installer
Please restart your machine and select one by clicking the serial number
IP Installer
Version 2.0
Serial Number
Current IP Address
Assigned
00-02-d1-00-01-34
192.168.0.168
No
Status
This IP is valid.
Setting and waiting for response from server.
Selected machine
Enter the IP address you want to assign and click the Set IP Address button
192 . 168 . 0 . 201
Use this IP whenever system boots
Check this option while clicking "Set IP Address" will skip installation procedure whenever machine starts up
Set IP Address
Exit

If the IP is not taken by another network device in the network, the Installer program will continue to setup. Otherwise another message window will warn that the assigned IP conflicts. In this case, administrators should ask the network supervisor for a vacant IP address.

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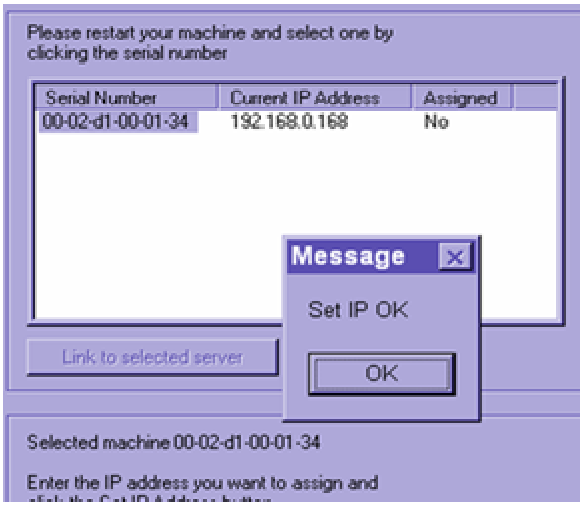
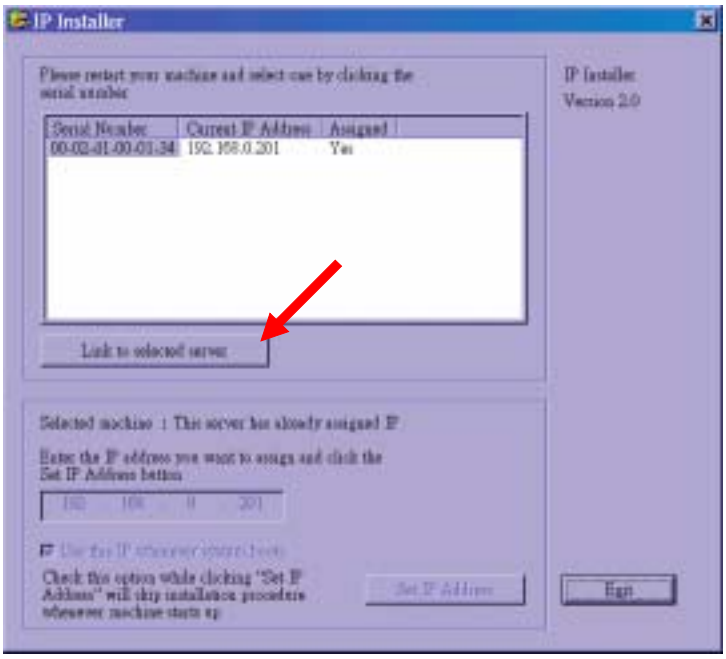
After clicking on OK in the successful dialog, the "Assigned" field will be labeled "Yes". Administrators should keep the address information for users' request.

If there is any error dialog rather than "Set IP OK", please check the next page.





Administrators may click directly on Link to selected server to access the newly installed server in the default browser.

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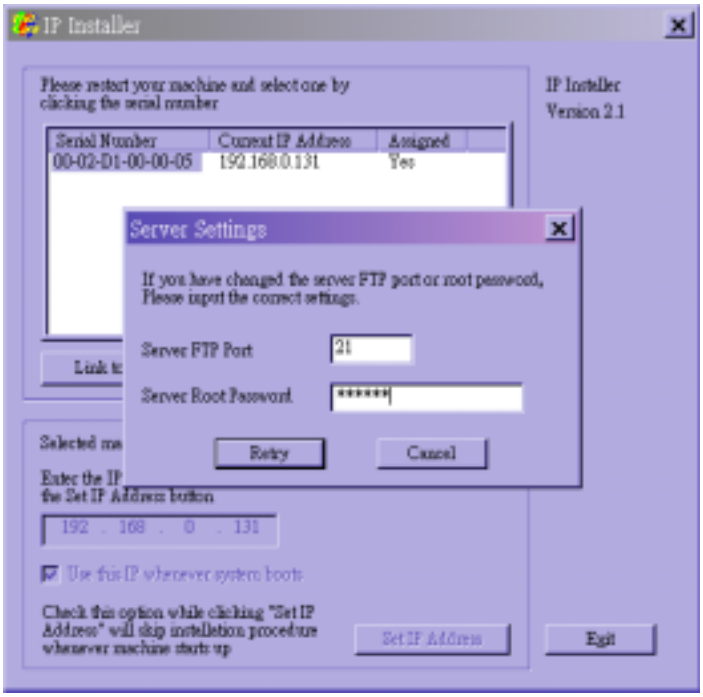
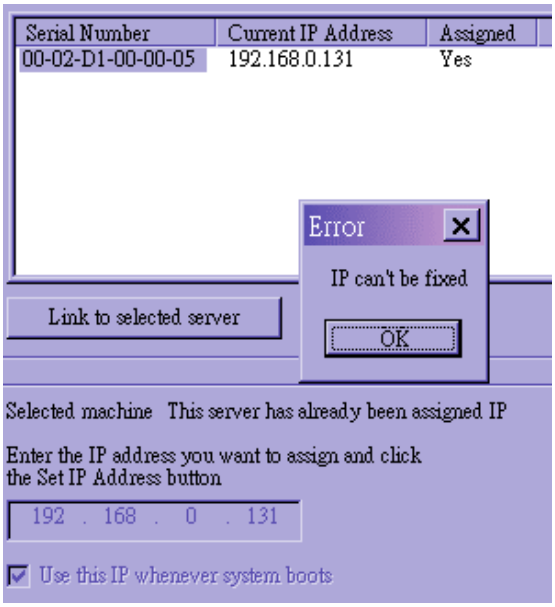
When administrators choose “Use this IP whenever system boots”, the local FTP server port and root password of Network Camera will be utilized. If they have been changed prior to the installation, a confirmation window will pop out to request correct settings. After entering the correct settings, press “Retry”.


IP Installer
Please restart your machine and select one by clicking the serial number
IP Installer Version 2.1
Serial Number
Current IP Address
Assigned
00-02-D1-00-00-05
192.168.0.131
Yes
Server Settings
If you have changed the server FTP port or root password, Please input the correct settings.
Server FTP Port
21
Server Root Password
Retry
Cancel
Enter the IP
the Set IP Address button
192 . 168 . 0 . 131
Use this IP whenever system boots
Check this option while clicking "Set IP Address" will skip installation procedure whenever machine starts up
Set IP Address
Exit


Serial Number
Current IP Address
Assigned
00-02-D1-00-00-05
192.168.0.131
Yes
Error
IP can't be fixed
OK
Link to selected server
Selected machine This server has already been assigned IP
Enter the IP address you want to assign and click the Set IP Address button
192 . 168 . 0 . 131
Use this IP whenever system boots

If the “Server FTP Port” or “Server Root Password” is lost, click “Cancel” to exit. In this case, the IP address of Network Camera will still be installed though it is not fixed for further reboot. If the root password is correct, administrator can log in to browse the correct local FTP server port in the network settings. Otherwise refer to Appendix A Troubleshooting to restore factory default settings and then use the installer to install again.

Once installation is complete, administrators should proceed to the next section "First access to Network Camera" for necessary checks and configurations.

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First access to Network Camera

Check network settings even if connected already

Although Network Camera already can be connected after software installation from Local Area Network, administrators should complete the network settings in the configuration page including the correct subnet mask and IP address of gateway and DNS. Ask for the network administrator or Internet service provider for the detail information. By default Network Camera will need administrator's installation every time it reboots. If the network settings are sure to work all the time, disable the install option. Refer to “Network settings” in system configuration page for details. Once any setting is entered incorrectly and thus hangs Network Camera, restore the factory settings according to the steps in troubleshooting.

Add password to protect from offense from strangers

Since the administrator’s password is blank by default, Network Camera will not ask for any password. However the administrator should change the password as soon as possible to protect from network intruders. Once the administrator’s password is saved, Network Camera always needs user name and password before access. The administrator can setup at most twenty user accounts. Each user is able to access Network Camera except for system configuration. Some critical functions are limited only for administrators such as system configuration, user administration and software upgrade. The user name of the administrator is assigned to “root” permanently. Once the password is changed, the browser will display an authentication window to ask for the new password. **There is no way to discover administrator’s password. If the password is forgotten, only restoring factory defaults can help.**

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How to Use

Authentication

After opening the Web browser and typing in the URL of Network Camera, a dialogue window may pop up to request a username and password except that the administrator does not save any password. Upon successful authentication, the main page will display like the figure below.

In the figure, the foreground is the login window and the background shows the message when authentication fails. The user may check the option to save the password for future convenience.

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Installing plug-in

If it is initial access to Network Camera in Windows, the web browser may prompt for permission to install a new plug-in that is provided by Network Camera. Prompt or not and the prompt message depend on the Internet security settings of user's PC or notebook. The highest security level may prohibit any installation and execution attempt even the plug-in is safe. This plug-in has been registered for certificate and is used to display the motioned pictures in the browser. Users may click on Yes to proceed. If the web browser does not allow the user to install, check the Internet security option to lower security levels or contact network supervisors.

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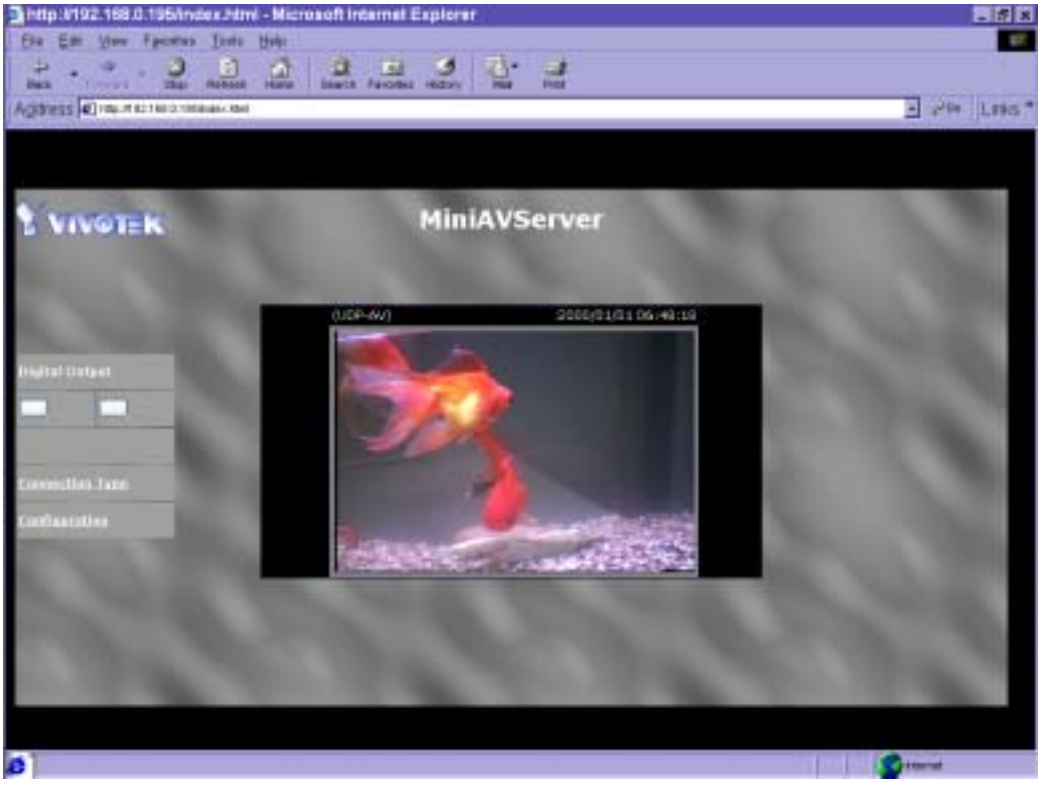
Primary user's capability

Main screen with camera view

There is a logo image shown in the upper left corner. It can link to other web sites or resources depending on the settings in configuration. The assigned caption and system date/time will display in the banner above the image window. There might be some windows enclosed by red lines shown in the image as soon as motion is detected in the related windows. Click on the configuration link to the right of the image window to enter the configuration page.



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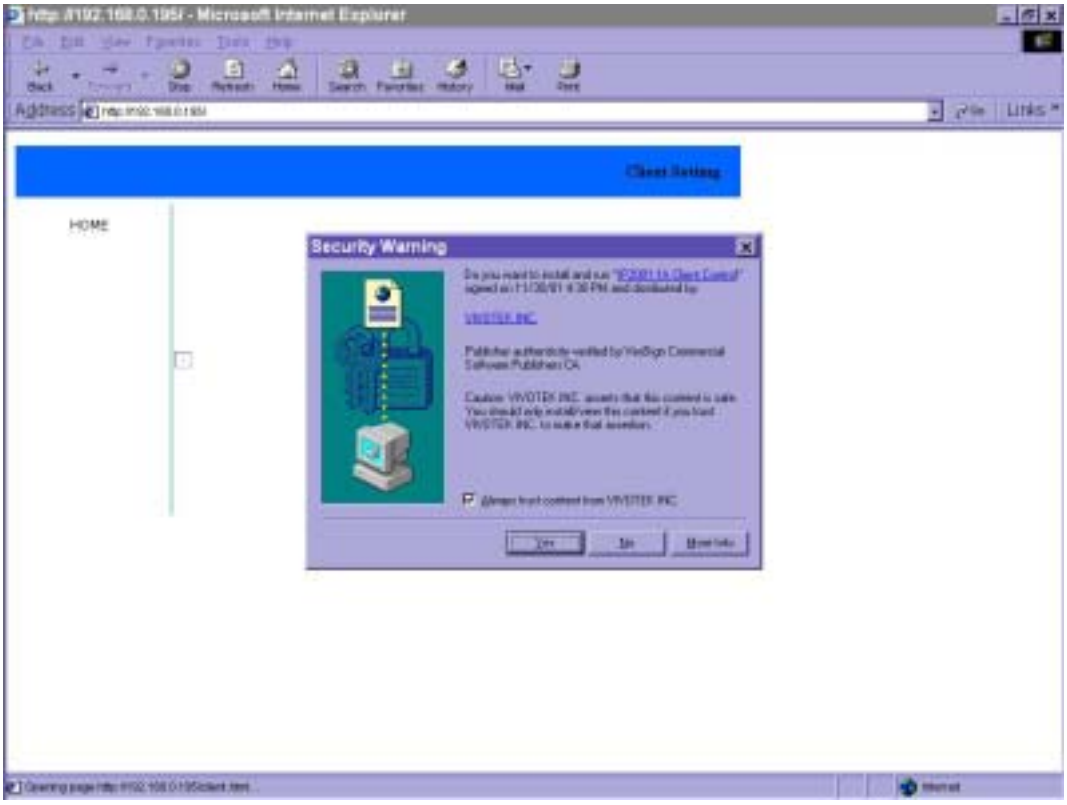
Connection type

If it is the first access to "**Connection type**" page in Windows, the web browser will ask to install a new plug-in that is provided by Network Camera. This plug-in has been registered for certificate and is used to change the parameters at the client side. Users may click on Yes to install the plug-in. If the web browser does not allow the user to install, check the Internet security to lower the security level or contact network supervisors.



There are two settings for the client side. One is "**Media Option**" for users to determine if the audio should be muted. The other is "**Protocol Option**" to choose the connection protocol between client and server. There are three protocols to optimize your usage - **UDP**, **TCP** and **HTTP**. With UDP protocol, audio and video streams can be more real-time. But some packets may be lost due to network burst traffic and images will be obscure. If TCP protocol is selected, packet loss would not occur and video

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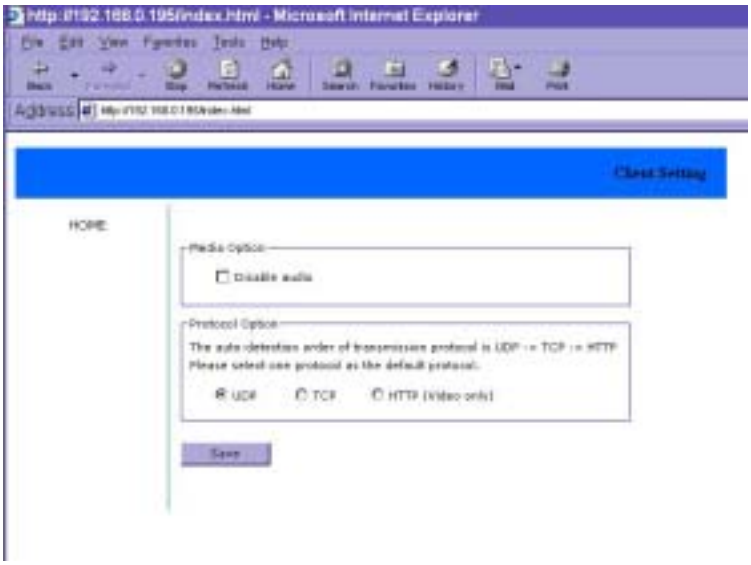
display will more accurate. But the real-time effect is worse than UDP protocol. If the network is protected by a firewall and it opens HTTP port (80) only, HTTP protocol must be selected. In this mode, audio will not be sent and you can see the video only. If you have no special needs and no idea to choose one among them, simply choose UDP. Generally the client will automatically try these protocols by the following order, UDP → TCP → HTTP. After the client connects to the Network Camera successfully, "**Protocol Option**" will show the working protocol. The chosen protocol will be recorded in the user's PC and used for next connection. If the network environment is changed or users want to let web browser detect again, select UDP manually to save and then return HOME to connect again.



<url> *http://<Network Camera>/protocol.html*

<Network Camera> is the domain name or original IP address of Network Camera.

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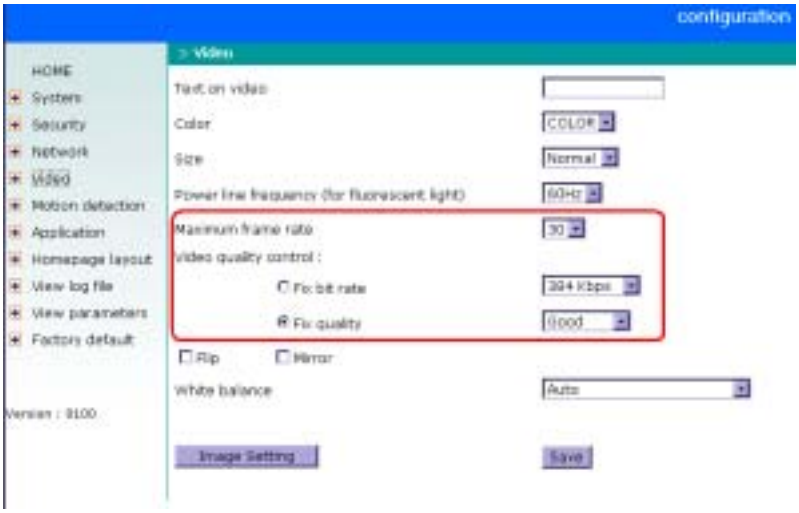
Administrator's capability

Tune the best performance

The best performance means the image refresh rate should be the fastest as possible and the video quality should be the best as possible at the lowest network bandwidth as possible. Three factors, **"Maximum frame rate"**, **"Fix bit rate"**, and **"Fix quality"** in the Video configuration page, are correlative to the performance.



My priority is real-time motioned images

To achieve the real-time visual effect, the network bandwidth should be large enough to transmit 20 image frames or more. If you are in the broadband network over 1 Mbps, you can fix the bit rate to 1000Kbps or 1200Kbps, or fix the quality to achieve the maximum frames. The maximum frame rate is 25 in 50Hz system and 30 in 60Hz system. If your network bandwidth is more than 384Kbps, you can fix the bit rate according to your bandwidth and set the maximum frame rate to 25 or 30. If the images vary dramatically in your environment, you may slow down the maximum frame rate to 20 to decrease the transmitted data for better video quality since human could not easily tell the difference between 20 and 25 or 30 frames per second. If your network bandwidth is below 384 Kbps, you should fix the bit rate according to your

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bandwidth and try out the best performance by tuning the maximum frame rate. The larger frame rate in slow network will blur the images. You may also try to choose “Half” in size option for better images or “Halfx2” for larger image size. Note that even you have well tuned the parameters, the performance may still vary from person to person when multiple users view at the same time. Because the network has burst constraint and everyone’s environment is not the same, any poor connection will drop the normal performance.

My priority is clear identification for each image

To have the best video quality, you should fix the quality to detailed or excellent and tune the maximum frame rate to suit for your network bandwidth. If you get some broken pictures in slow network, you can choose TCP protocol in “Connection type” for more accurate transmission but the received images may have certain time delay. Note that any slow connection in multiple users will drop the proper performance.

I want to compromise between real-time and clear images

If you have a broadband network, choose fix quality to normal or better rather than fix bandwidth. Otherwise fix the bandwidth according to your actual network speed and set the frame rate to 30. If the images look bad, select the lower frame rate above 15. If the images are not improved, select the lower bandwidth.

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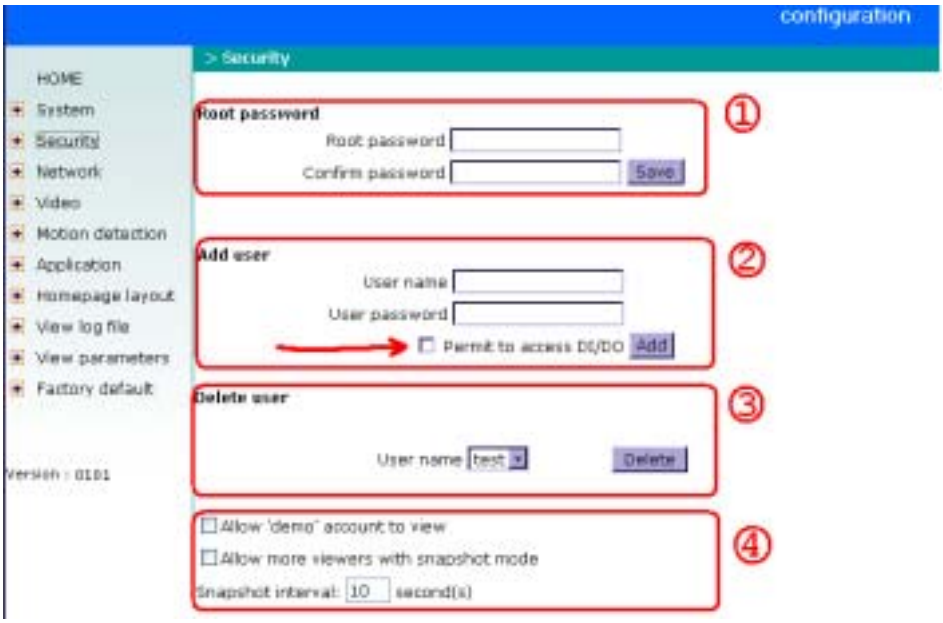
Open accounts for users



Protect Network Camera by passwords

Network Camera is shipped without any password by default. That means everyone can access Network Camera including the configuration as long as the IP address is known. It is necessary to assign a password if Network Camera is intended to be accessed by others. Type a new word twice in ① to enable protection. This password is used to identify the administrator. Then add an account with user name and password for your friends in ②. Network Camera can provide twenty accounts for your valuable customers or friends. Each account identifies the access right rather than the real visitor. That allows multiple visitors share the same account of different level. An option to access DI/DO is provided for each account. Some users may need to prohibit from controlling your attached devices. You may delete some users from ③.

More flexible options for viewers ④

The first option allows anyone uses “demo” as the user name to view without password. Administrators can also decide if more viewers are allowed to watch the video if the viewers exceed the limit. The overloaded viewers will have snapshot mode instead.

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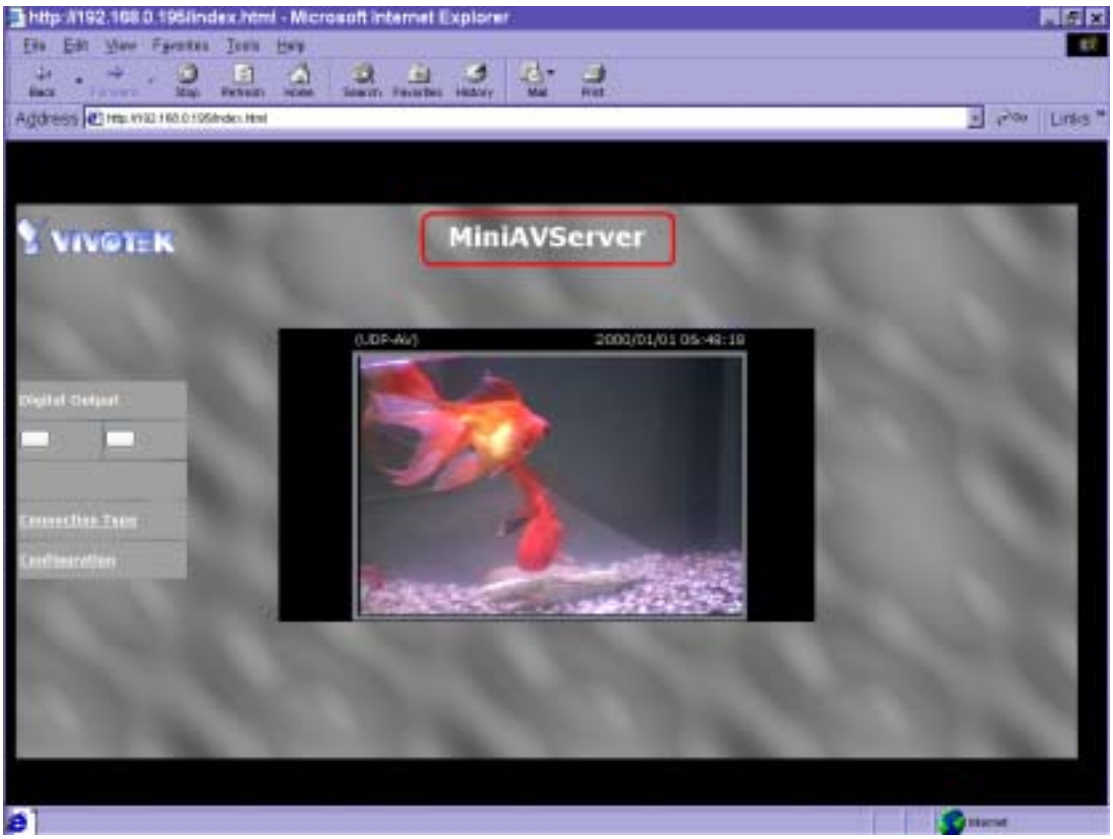
Change homepage layout

How to change the subject text of homepage

1. Click on “Configuration” on homepage,
2. Change the text in “Host name”,
3. Click on “Save” button.



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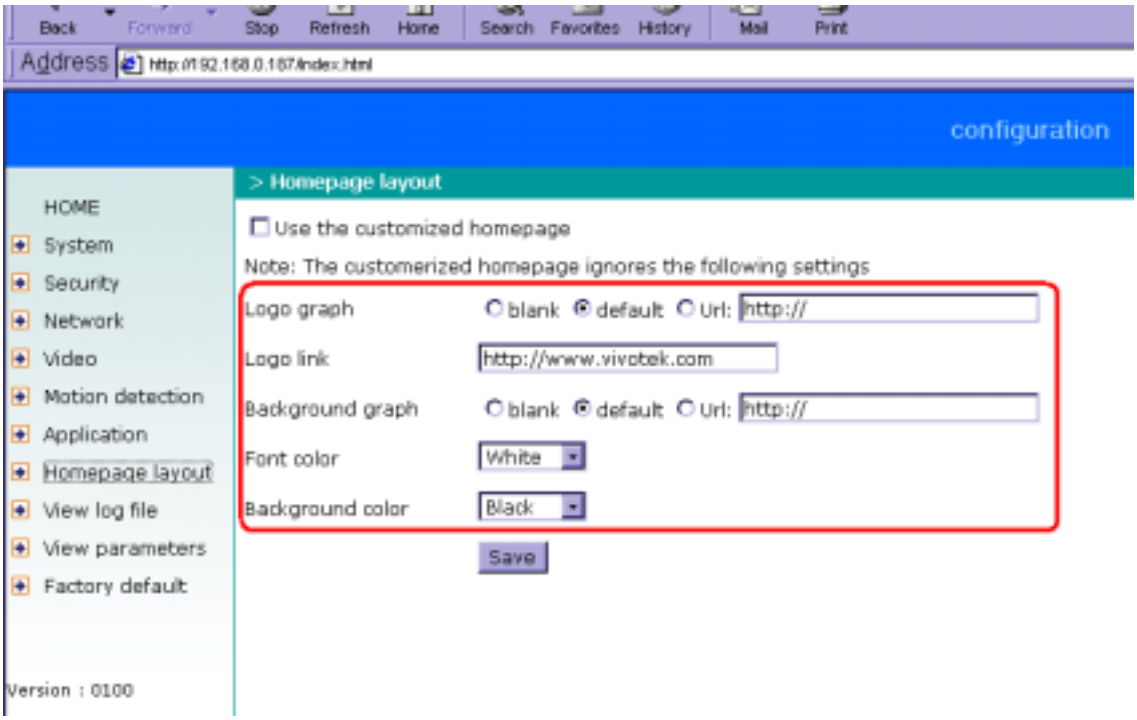

How to change the font color

1. Click on “Configuration” on homepage,
2. Click on “Homepage layout” at the left column,
3. Find “Font color” and pull down the list to choose any color you like,
4. Click on “Save” button.

* The font color is better to contrast with the background.

How to change the background

1. Click on “Configuration” on homepage,
2. Click on “Homepage layout” at the left column,

If you want to display simple color without any image,

3. Find “Background graph” and choose “blank”,
4. Find “Background color” and pull down the list to choose any color you like,
5. Click on “Save” button.

* The background color is better to contrast with the font.

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If you want to use the image from another web site as background,

3. Find “Background graph” and choose “Url”,

4. Type the URL of the image on the Internet in the edit box, for example, “http://dgl.microsoft.com/thumbnails/j023/j0235217(t).gif”,

5. Click on “Save” button.

If you want to change the default background image stored in Network Camera,

3. Find “Background graph” and choose “default”,

4. Click on “Save” button,

5. Prepare an image file with size less than 131000 bytes and rename it to wallppr.jpg,

6. Open an FTP client program and connect to Network Camera. The user name and password is as same as the administrator’s.

7. Transfer wallppr.jpg in local folder to Network Camera,

8. Close the FTP program and reload the homepage of Network Camera.

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How to change the image logo at the upper left corner of homepage

1. Click on “Configuration” on homepage,
2. Click on “Homepage layout” at the left column,

If you want to remove any logo,

3. Find “Logo graph” and choose “blank”,
4. Click on “Save” button.

If you want to use the image from another web site as logo,

3. Find “Logo graph” and choose “Url”,
4. Type the URL of the image on the Internet in the edit box, for example, “http://dgl.microsoft.com/thumbnails/j023/j0234430(t).gif”,
5. Click on “Save” button.

If you want to change the default logo stored in Network Camera,

3. Find “Logo graph” and choose “default”,
4. Click on “Save” button,

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5. Prepare an image file with size less than 65000 bytes and rename it to logo.gif,
6. Open an FTP client program and connect to Network Camera. The user name and password is as same as the administrator's.
7. Transfer logo.gif in local folder to Network Camera,
8. Close the FTP program and reload the homepage of Network Camera.

If you want to add hyperlink to the logo image,
3. Find "Logo link" and type the hyperlink in the edit box, for example, http://www.mywebsite.com,
4. Click on "Save" button.

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How to design my own homepage to replace the current one

1. Prepare your own homepage with size less than 65000 bytes and rename it to user.htm,
2. Insert the html codes of video object, the bold Italian text in the following example, into the appropriate position in user.htm. Note that the codes of video object must be copied exactly the same including the letter case.

```
****** Example homepage begin ******
<html>
<head>
<title>Example – custom homepage</title>
</head>
<body background="/pic/wallppr.jpg">
<p>
  <a href="/setup/config.html">
  <img          src="http://dgl.microsoft.com/thumbnails/j023/j0234430(t).gif"
align="left" width="64" height="64">
  </a>
  <font size="7" face="Comic Sans MS" color="#FF0000">
MiniAVServer Demo
</font>
</p>
<p align="left">
<!-- Copy the next bold line to where you want to show the image coming from
MiniAVServer. This line is remark only and is hidden on homepage. //-->
<OBJECT ID=VAMCtrl></OBJECT>
</p>
</body>
</html>
****** Example homepage end ******
```


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3. Open an FTP client program and connect to Network Camera. The user name and password is as same as the administrator's.
4. Transfer user.htm in local folder to Network Camera,
5. Close the FTP program and reload the homepage of Network Camera,
6. Click on "Configuration" on homepage,
7. Click on "Homepage layout" at the left column,
8. Check "Use the customized homepage".
9. Click on "Save" button and return to homepage.

* The user.htm only provides plain text content that scripts and URL of external resources can be used to adorn the homepage. Refer to tutorials of writing HTML and scripts.

⚠ If the customized homepage goes wrong and cannot display, link to the "Homepage layout" page, "http://<IP address of MiniAVServer>/setup/layout.html", to disable "Use the customized homepage".

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Build a multimedia web attraction site

Show off to my friends – mid-scale service

Network Camera can allow ten visitors on-line simultaneously. Just follow the installation, focus Network Camera on any view you would like friends to share and tell them the address to type in the web browser. Of course you have to maintain your friend list in the security configuration page to filter unexpected strangers. No need to have the geeks' skill and equipments, no need to find suitable software.

Show my products or scenic spot for e-business – large-scale service

If the visitors may exceed the account limit, Network Camera can supply extra viewers the homepage of snapshot mode that will have the JPEG still image refreshed periodically and automatically. It needs script function supported by the web browser.

1. Click on "Configuration" on homepage,
2. Click on "Security" at the left column,
3. Go to the page bottom and check "Allow more viewers with snapshot mode",
4. Set the snapshot interval to refresh the still image automatically. The longer the snapshot interval is, the better the snapshot mode works for more viewers.

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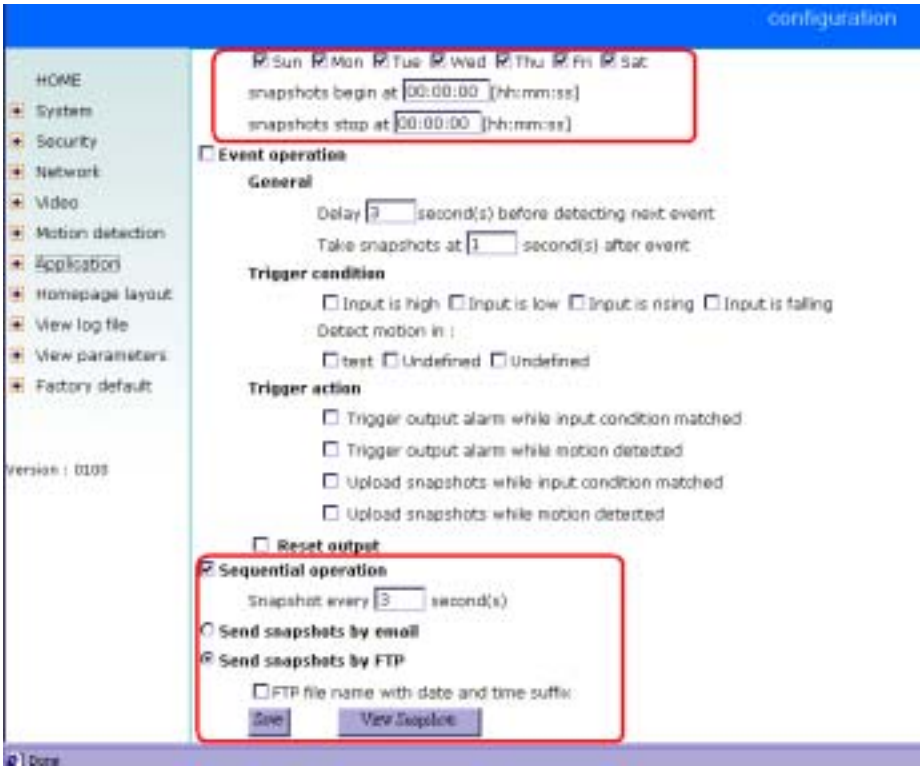
If you want to expand the viewers tremendously, host a powerful web site that can handles large network traffic and attract eyeballs with the picture refreshed often by Network Camera.

If the web space has FTP service,
Setup Network Camera as an FTP client to upload the pictures. The advantage is the access of Network Camera is independent of the viewers to ensure the quality.



1. Click on “Configuration” on homepage,
2. Click on “Network” at the left column,
3. Fill the FTP related settings including server, user name and password, as well as the upload path if specified by the web space,
4. Click on save and wait for system restart,
5. Click on “Application” at the left column,
6. Select the weekday and daily schedule you want to upload the pictures,
7. Select “Sequential operation” and set the interval,
8. Select FTP without date time suffix as the upload method and click on save,
9. The image file uploaded to the web space is named “video.jpg”. Check if the file is

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successfully uploaded to the correct folder,

10. Prepare a homepage with the embedded image reference to the image file uploaded via FTP in advance.

If the web space has no FTP service,

An auto-refresh homepage can be used to periodically poll the newest image from Network Camera. It is mostly useful in the free web space provider as their FTP service may be limited to use.

1. Prepare an auto-refresh homepage like the following example. The URL of image is http://“IP address of Network Camera”/cgi-bin/video.jpg. Modify the IP address according to your Network Camera. Also define the refresh interval according to your network bandwidth for best effect. Too frequent refresh rate for a great deal of visitors may overload Network Camera and retard the response.

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```
****** Example homepage begin ******
<html>
<head>
<title>Example - auto refresh</title>
</head>
<body background="/pic/wallppr.jpg">
<p align=left>
  <font size="7" face="Comic Sans MS" color="#FF0000">
  MiniAVServer Demo
  </font>
</p>
<p align=left>
<!-- Begin of scripts to auto refresh the image. Change the IP address in the image
URL and refreshrate if necessary. //-->
<script language=javascript>
var image="http://192.168.0.203/cgi-bin/video1.jpg";        //IMAGE URL
var refreshrate=5;                  //SECONDS BETWEEN REFRESH
var imgwidth=352;                   //IMAGE WIDTH
var imgheight=240;                  //IMAGE HEIGHT
function refresh(){
document.images["pic"].src=image+"?"+new Date();
setTimeout('refresh()', refreshrate*1000);}
document.write('<img          src="'+image+'"          height="'+imgheight+'"
width="'+imgwidth+'" name="pic">');
if(document.images)window.onload=refresh;
</script>
<!-- End of scripts to auto refresh the image. //-->
</p>
</body>
</html>****** Example homepage end ******
```


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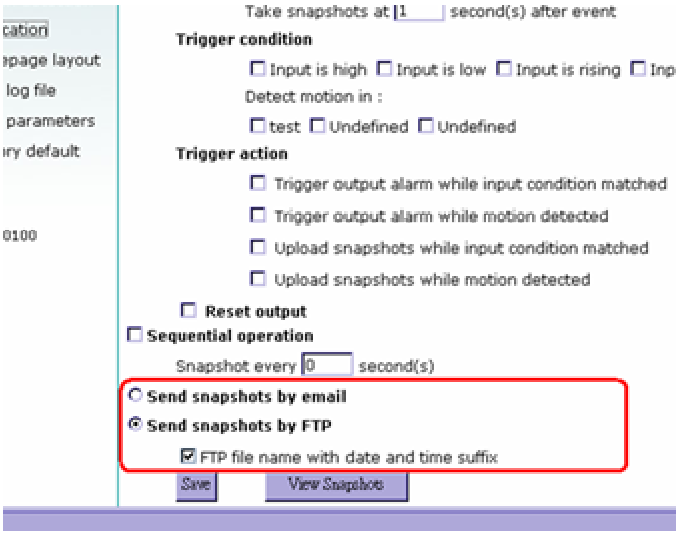
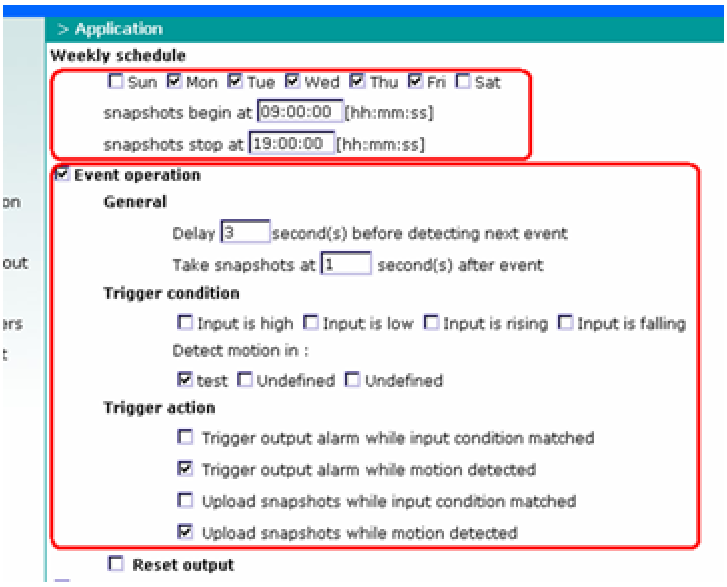
Build a security application

Administrators can combine options on the application page to perform many useful security applications. There are two trigger sources coming from attached devices and/or motion detection. There are also two kinds of actions responding to events including uploading snapshots over internet and driving attached devices. To upload the snapshots, users can choose wither email or FTP according to user's needs. Both e-mail and FTP use the network settings on the network page. Refer to the definition section for detail configuration.


Take snapshots at 1 second(s) after event
Trigger condition
Input is high Input is low Input is rising Inp
Detect motion in :
test Undefined Undefined
Trigger action
Trigger output alarm while input condition matched
Trigger output alarm while motion detected
Upload snapshots while input condition matched
Upload snapshots while motion detected
Reset output
Sequential operation
Snapshot every 0 second(s)
Send snapshots by email
Send snapshots by FTP
FTP file name with date and time suffix
Save
View Snapshot

1. Click on "Configuration" on homepage,
2. Click on "Application" at the left column,
3. Check the weekdays as you need and give the period of "**Snapshots begin**" time and "**Snapshots end**" time to monitor the trigger conditions every day,
4. Check the "**Event operation**". The trigger condition can be set to detected motion or status of the attached device,
5. Set the delay **before detecting next event** to avoid continuous false alarms


> Application
Weekly schedule
Sun Mon Tue Wed Thu Fri Sat
snapshots begin at 09:00:00 [hh:mm:ss]
snapshots stop at 19:00:00 [hh:mm:ss]
Event operation
General
Delay 3 second(s) before detecting next event
Take snapshots at 1 second(s) after event
Trigger condition
Input is high Input is low Input is rising Input is falling
Detect motion in :
test Undefined Undefined
Trigger action
Trigger output alarm while input condition matched
Trigger output alarm while motion detected
Upload snapshots while input condition matched
Upload snapshots while motion detected
Reset output

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following the original event,

6. Set the delay to **take snapshots after event** to capture the direction of the moving objects,

Send snapshots when motion is detected

If no external sensor is available, administrators can utilize the built-in motion detection to monitor any abnormal movement and then send emails with snapshots included for security check.

7. Click on "**Motion detection**" at the left column,
8. Check "Enable motion detection",
9. Click on new to have a new window to monitor video,
10. Type in a name to identify,
11. Use mouse to drag the window corner to resize or the title bar to move,
12. Tune the "**Sensitivity**" and "**Percentage**" according to the local environment. The higher sensitivity, the easier motion is detected. The higher percentage, the more difficult to detect small moving objects,
13. Click on save will enable the activity display. Green means the motion in the window is under the watermark set by administrators and red means it is over the watermark,

14. Click on "**Application**" at the left column,
15. Check the window name set in step 10,
16. Check "Upload snapshots while motion detected",

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If emails with snapshots are preferred,

17. Check “Send snapshots by email”,
18. Click on save to validate.

If emails with snapshots are preferred,

17. Check “Send snapshots by email”,
18. Click on save to validate.

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Software revision upgrade

Customers can obtain the up-to-date software from Vivotek web site. An easy-to-use Upgrade Wizard is provided to upgrade Network Camera with some clicks. This function is open to administrators only. To upgrade the system, follow the procedures below.

1. Download the firmware file named FLASH.BIN from the appropriate product folder.
2. Run the Upgrade Wizard and proceed by the prompts. Refer to the instructions of Upgrade Wizard for details.
3. The whole process will finish in couple minutes and automatically restart the system.

If the power fails during the writing process of Flash memory, the program in the memory of MiniAVServer may be destroyed permanently. If MiniAVServer cannot restart properly, ask the dealer for technical service.

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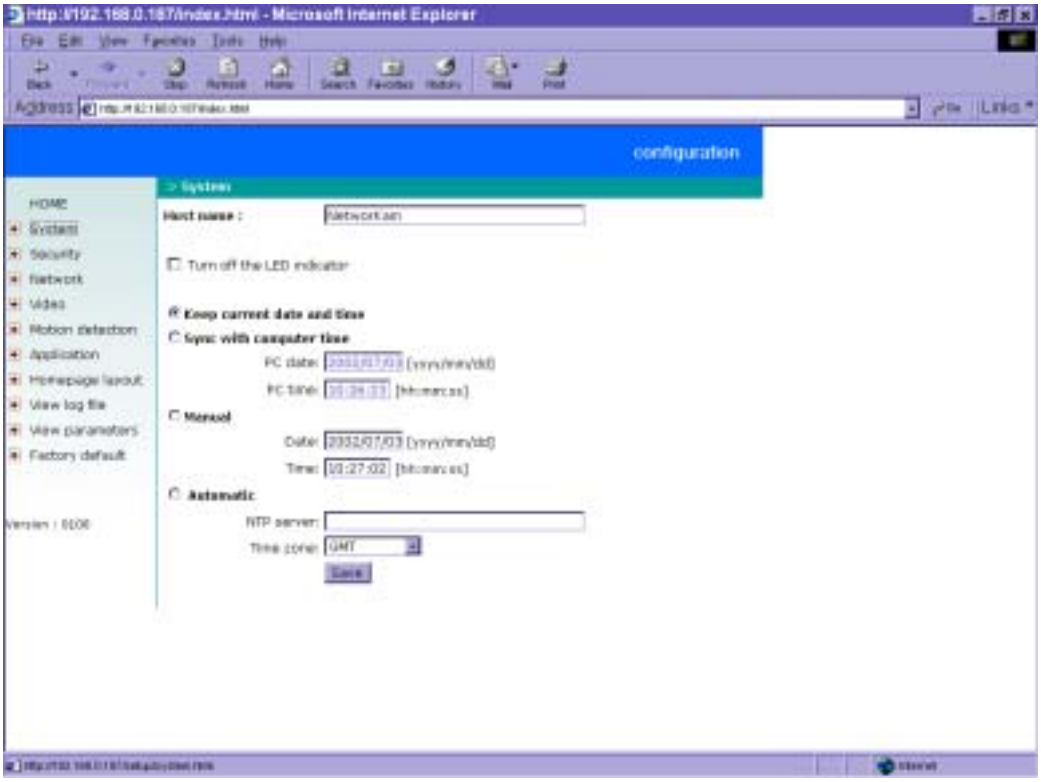
Definition of Configuration

System configuration can be accessed only by administrators. Each category in the left column will be explained in the following pages. The bold texts are those specific phrase on the option pages. Administrators may type the URL below the figure to directly enter the frame page of configuration. If administrators also want to set certain options through the URL, read the reference appendix for details.



<url> *http://<Network Camera>/setup/config.html*

<Network Camera> is the domain name or original IP address of Network Camera.

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System parameters

"Host name", the text will display as title at the top of the main page.
“Turn off the LED indicator”, check this option to shut off the LED beside the lens. It can prevent others from observing the operation.
"Keep current date and time", click to reserve the current date and time of Network Camera. An internal real-time clock maintains the date and time even when the power of the system is turned off.
"Sync with computer time", synchronize the date and time of Network Camera with the local computer. The read-only date and time of PC is displayed as updated.
“Manual”, adjust the date and time according to what entered by administrators. Notice the format in the related field while typing.
“Automatic”, synchronize with the NTP server over the Internet whenever Network Camera starts up. It will fail if the assigned timeserver cannot be reached.
“NTP server”, assign the IP address or domain name of the timeserver. Leaving the text box blank will let Network Camera connect to default timeservers.
"Time zone", is used to adjust the hour get from timeservers for local settings.

Remember to click on Save to validate changes. The later click on Save, the less accurate time set by manual.

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User group administration

“Root password”, to change the administrator’s password, type the new password in both text boxes identically. What is typed will be displayed as asterisks for the security purpose. After pressing Save, the web browser will ask administrators for the new password for access.

“Add user”, type the new user's name and password and press Add to insert the new entry. The new user will display in the user name list for deletion. There are maximum twenty user accounts. Each user can have privilege to **“Permit to access DI/DO”**.

“Delete user”, pull down the user list to find the user name and press Delete.

“Allow ‘demo’ account to view”, click to permit who typing “demo” as user name while authentication. No password is needed for demo account. Note that demo account is restricted to view only.

“Allow more viewers with snapshot mode” can let more viewers than limited account to watch the video. However the video is a still image automatically refreshed by the interval defined below. This feature must be supported by java script capability of web browsers.

“Snapshot interval” defines the refresh rate of the still image in the homepage seen by overloaded viewers.

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Network settings

Any change made to this page will make the system restart to validate. Make sure every field is correctly typed before clicking on Save.

"Reset IP address at next boot", the default status is checked to eliminate incautious mistakes during installation. However it is very annoying to perform software installation whenever Network Camera starts. Once the network settings, especially the IP address, are correct, uncheck this option to use permanently. This option can also be disabled using the Installer program. Once the option is disabled, Network Camera will skip installation at the next boot and the Installer program will no longer find the installed units. That implies that Network Camera cannot be accessed if no one remembers the IP address, except by restoring factory default settings. However, with this option disabled Network Camera can automatically operate normally after restarting in case of losing power.

General

"IP address", it is necessary for network identification.
"Subnet mask", it is used to determine if the destination is in the same subnet. The default value is "255.255.255.0".
"Default router", it is the gateway used to forward frames to destinations in different subnet. Invalid router setting will fail in transmission to destinations in different subnet.
"Primary DNS", primary domain name server who translates names to IP addresses.
"Secondary DNS", secondary domain name server to backup the primary one.

SMTP

"SMTP(mail) server 1", the domain name or IP address of external email server.
"Recipient email address 1", the email address of recipients for snapshots or log file. Multiple recipients must be separated by semicolon, ';'.

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“SMTP(mail) server 2”, the domain name or IP address of another email server once the previous server is unreachable.
“Recipient email address 2”, the email address of recipients for the backup server.
“Return email address”, The return email address once the mails fail to send out.

FTP

“Local FTP server port”, it can be other than default port 21. After changed, external FTP client program must change the server port of connection accordingly.
“1st FTP server”, the domain name or IP address of external FTP server. The following user settings must be correctly configured for remote access.
“1st FTP user name”, granted user name on the external FTP server.
“1st FTP password”, granted password on the external FTP server.
“1st FTP remote folder”, granted folder on the external FTP server. The string must conform to the external FTP server. Some FTP server cannot accept preceding slash symbol before the path if no virtual path mapping. Refer to the instructions of external FTP server for details. The folder privilege must be open for upload.
“Primary FTP passive mode”, if Network Camera is located inside the network protected by firewall, data connection for FTP may be prohibited. Passive mode FTP can bypass the rule and succeed to upload snapshots. If the passive mode is selected, Network Camera can automatically attempt for active mode if the external FTP server does not support passive mode.
“2nd FTP server”, the domain name or IP address of external FTP server.
“2nd FTP user name”, granted user name on the backup FTP server.
“2nd FTP password”, granted password on the backup FTP server.
“2nd FTP remote folder”, granted folder on the backup FTP server.
“Secondary FTP passive mode”, passive mode setting for the backup FTP server.

HTTP

“Http port”, it can be other than default port 80. Once the port is changed, users must be informed for successful connection. For instance, when the administrator changes the HTTP port of Network Camera whose IP address is 192.168.0.100 from 80 to 8080,

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users must type in the web browser “http://192.168.0.100:8080” instead of “http://192.168.0.100”.

Streaming

“Control channel port”, it can be other than default port 5001 to cooperate with the port opened by the firewall.
“Audio channel port”, it can be other than default port 5002 to cooperate with the port opened by the firewall.
“Video channel port”, it can be other than default port 5003 to cooperate with the port opened by the firewall.
“Improve audio quality in low bandwidth environment”, if Network Camera works in versatile or low network bandwidth environment, users can check this option to improving audio quality by sacrificing some real-time synchronization.

⚠ Some invalid settings may cause system failure to respond. Change the configuration only if necessary and consult with network supervisor or experienced users for correct settings. Once the system is lost contact, refer to Appendix A for reset and restore procedures.

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Video codec parameters

“Text on video”, the text will be displayed in the black bar above the video window with a timestamp. The timestamp is captured from date and time of Network Camera that is maintained by a built-in real-time clock.

“Color”, select either one for color or monochrome video display.

"Size", there are three options for two video sizes. **“Half”** has quarter size of **“Normal”**. **“Half x 2”** has the same video size as **“Normal”** but has worse quality. However it consumes less network bandwidth.

“Power line frequency (for fluorescent light)”, the fluorescent light will flash according to the power line frequency that depends on local utility. Change the frequency setting to eliminate uncomfortable flash image when the light source is only fluorescent light.

There are three dependent parameters provided for video performance adjustment. "**Maximum frame rate**", it limits the maximal refresh frame rate that can be combined with the **"Video quality control"** to optimize the bandwidth utilization and video quality. If users want to fix the bandwidth utilization regardless of the video quality, choose **"Fix bit rate"** and select the desired bandwidth. The video quality may be poor in order to send maximal frames within the limited bandwidth when images change drastically. Consequently to ensure the video detail (quantization rate) regardless of the network, it will utilize more bandwidth to send the maximal frames when images change drastically.

"Flip", vertically rotate the video.

"Mirror", horizontally rotate the video. Check both if Network Camera is installed upside down.

“White balance”, choose the suitable option for best color temperature.

, click this button to pop up another window to tune **"Brightness"**, **“Contrast”**, **“Hue”** and **"Saturation"** for video compensation. Each field has eleven levels ranged from -5 to +5. The user may press

to fine-tune the image. When the image is O.K., press

to memorize the image settings.

can be clicked to recall the original settings without changes.

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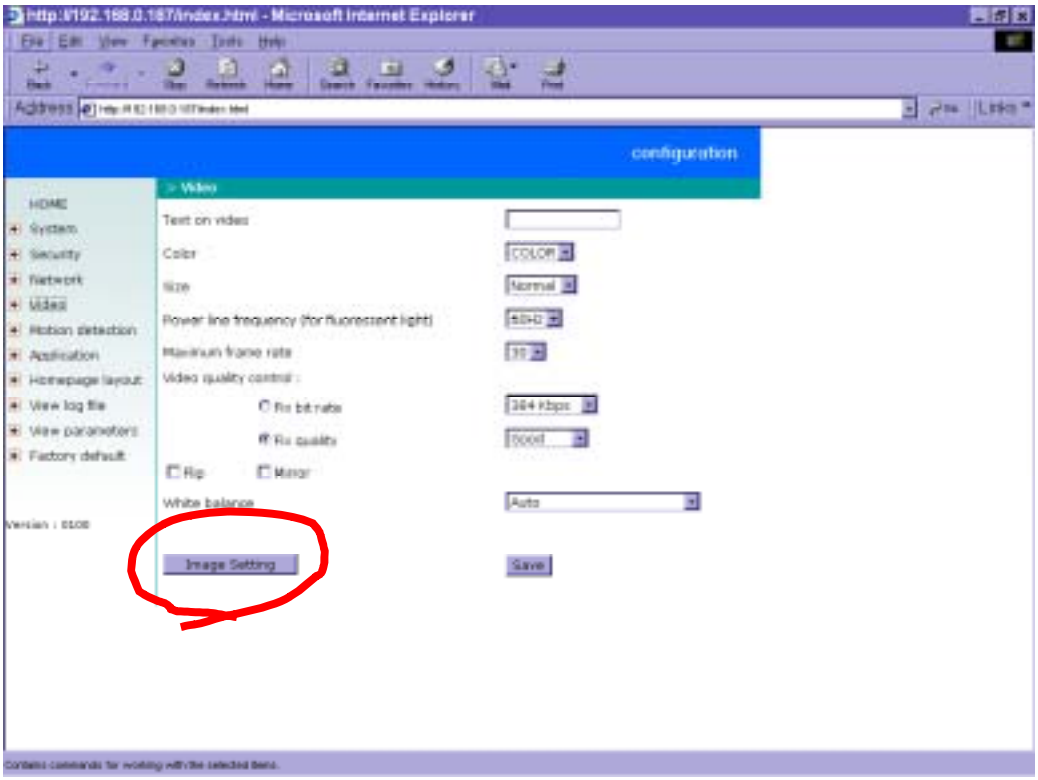

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Motion detection

“Enable motion detection”, check this option to turn on the motion detection.

New, click on this button to add a new window. At most three windows can exist at the same time. Use the mouse to drag the window frame to resize or the title bar to move. Clicking on the ‘x’ at the upper right corner of the window can delete the window. Remember to save to validate the changes.

Save, click on this button to save the related settings regarding to the window. A graphic bar will rise or fall depending on the image variation. A green bar means the image variation is under monitoring level and a red bar means the image variation is over monitoring level. When the bar goes red, the detected window will also be outlined in red. While back to the homepage, the monitored window will hide but the red frame will show when motion is detected.

"Window Name", the text will show at the top of the window.

“Sensitivity”, it sets the endurable difference between two sequential images.

“Percentage”, it decides the space ratio of motioned objects over the monitored window. Higher sensitivity and small percentage will make motion easier detected.

The following figure shows the screen when Save is clicked. The monitoring window has been outlined in red and the graphic bar goes red since the goldfish is moving.

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Application setup

Weekly schedule

“Sun” ~ “Sat”, select the weekdays that should perform the following operations.
“Snapshots begin at”, set the time to start operations. Setting begin time as same as stop time will perform operations 24 hours.
“Snapshots stop at”, set the time to stop operations.

Event operation

“Delay second(s) before detecting next event”, set the time delay before restarting to check the trigger condition when the current condition is triggered.
“Take snapshots at second(s) after event”, when a snapshot is taken upon the condition is triggered, another snapshot will be taken after the configured seconds.
“Trigger condition”, there are four conditions related to the digital input and three windows for motion detection. They can be multiple selected. Select the appropriate digital input condition according to the characteristics of the external device. “high”, “low” indicate external voltage input or not for level trigger while “rising”, “falling” is for edge trigger. There are three windows shown as the name for motion detection. “undefined” will show instead of the window title if motion detection is not setup yet. In such case, clicking on the “Motion detection” in the note can direct to the configuration page of motion detection.
“Trigger action”, there are four options for two actions regarding to either condition. They can be multiple selected. While choosing trigger output alarm, the digital output will short both pins to connect the circuit of the attached external device; otherwise both pins will be open. While choosing to upload snapshots, the method can be either email or FTP. The snapshot names will be “vpre.jpg”, vtrg.jpg”, and “vpos.jpg” respectively for the snapshots before event, right upon event, and after event. The date and time suffix may be added according to the option. Confirm the external mail or FTP server settings in network configuration.

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“Reset output”, check and save this option to reset the external device at the digital output back to the original state.

Sequential operation

“Snapshot every second(s)”, Network Camera will send snapshots at the specified interval to the external server according to the chosen method. Remember this operation is still subject to the weekly schedule.

“Send snapshots by email”, any upload action specified in the options above will use the method chosen here. The captured snapshot named “video.jpg” will be attached in the email with subject “Periodic snapshots”.

“Send snapshots by FTP”, the captured snapshots will upload to the external FTP server with the file name depending on the next option. It can be used to refresh the captured image stored in the external web server to build creative homepages.

“FTP put snapshots with date and time suffix”, if the suffix is added, the captured date and time can be easily differentiated from the snapshot file name in either sequential or event operation. For instance, “video@20020102030405.jpg” means the JPEG image was captured at 4 minutes and 5 seconds after 3 o’clock, January 2nd, A.D. 2002. If the suffix is omitted, the file named “video.jpg” on the external FTP server will be refreshed at the specified interval.

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Homepage layout settings

“Use the customized homepage”, check this option to use “user.htm” uploaded by administrators instead of the default one. Refer to the section “Administrator’s capability” for detail usage. The following options related to the default homepage will not affect the “user.htm”.

“Logo graph”, the logo located at the upper left corner of homepage can be hidden, the default one that can be changed by administrators, or any image on the Internet that can be located via URL. The default logo is stored in memory and can be changed by FTP. The maximal size is 32000 bytes. Though the file name is fixed to “logo.gif”, the image can be any file format as long as the web browser can read it. Refer to the section “Administrator’s capability” for how to change the default logo.

“Logo link”, when users click on the logo image, a new window will pop up to show the homepage of the given URL. Clear the URL will disable the link function.

“Background graph”, the background image can be hidden to show the background color only, the default one that can be changed by administrators, or any image on the Internet that can be located via URL. The default background image is stored in memory and can be changed by FTP. The maximal size is 131000 bytes. Though the file name is fixed to “wallppr.jpg”, it can be any file format as long as the web browser can read it. Refer to the section “Administrator’s capability” for how to change the background image.

”Font color", pull down the list to select any color for the text in the homepage.

”Background color", pull down the list to select any color for the homepage background. It can be seen when the background image is not displayed.

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Viewing system log

Click the link on the configuration page to view the system log file. The content of the file reveals useful information about configuration and connection after the system boots up.

Viewing system parameters

Click the link on the configuration page to quickly view the whole system parameter set. The content is the same as CONFIG.INI.

Restore factory default settings

Click the link on the configuration page to restore the factory default settings. This means any changes made before will be lost and the system will be reset to the initial status when shipped from the factory. After confirmation, the system will restart and require the installer program to setup the network.

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Appendix

A. Troubleshooting

Status LED

After the power has been turned on, Network Camera will perform a self-diagnostic to detect any hardware defects. The following table lists the LED patterns in general conditions. In case of any fatal error, the LED will blink in another pattern.

Condition	LED color
During self-diagnostic after power on	Blink in interchanged green and red
Ethernet signal is lost	Steady red till Ethernet is detected
Before network is setup	Steady green till IP address is confirmed
After network is setup	Blink green every second
Any hardware failure	Other patterns

Reset and restore

Restore the factory defaults will lose any previous settings. Reset or restore the system after power on.

There is a button hidden in the pinhole beside the Ethernet socket. It is used to reset the system or restore the factory default settings. Sometimes resetting the system can make the system back to normal state. If the system still has problems after reset, restore the factory settings and install again.

RESET: Poke the wrench to click on the button.

RESTORE: 1. Poke the wrench to press on the button continuously.

2. Wait for self-diagnostic to run twice.

3. Withdraw the wrench as soon as the second self-diagnostic starts.

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B. Frequently asked questions

Q What if I forget my password?

A After the administrator's password is assigned, every access to Network Camera needs authentication. If you are one of the managed users, you have to ask the administrator for the password. If you are the administrator, there is no way to recover the root password except for restoring factory default. Refer to Appendix A for the procedures.

Q Why can I not watch video from Network Camera after it is authenticated?

A There are many possible scenarios regarding this problem,

1. If you have just installed Network Camera and are unable to watch the video, check if the heartbeat LED is blinking or the lens cap is removed. If the heartbeat LED is dim, perform the software installation again.
2. If Network Camera is well installed and you are accessing Network Camera for the first time using Internet Explorer, adjust the security level of Internet Explorer to allow installation of plug-ins.
3. If the problem still exists after adjusting, and the message over the image window is showing "connecting", the network traffic may be too crowded.

Q What is the plug-in for?

A The plug-in provided by Network Camera is used to display motion pictures and audio in Internet Explorer. If your system does not allow installation of any plug-in software, the security level of the web browser may need to be lowered. It is recommended that you consult your network supervisors in your office regarding adjustment of the security level. Software installation may be regulated in some offices.

Q Why is the timestamp different from the system time of my PC or notebook?

A The timestamp is based on the system time of Network Camera. It is maintained by a real-time clock inside and can be automatically synchronized with the time server if Network Camera is connected to the Internet and the function is enabled. Differences of several hours may result from the time zone setting.

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Q Can I install it on ceiling?
A Yes. There are flip and mirror options in video configuration page to correct the images for upside down installation.

Q The image is not clear enough.
A Rotate the lens to adjust the focus after Network Camera is installed in the proper position. The image settings and white balance can be fine tuned to achieve the best visual effect. Also notice the power line frequency must match the local utility to synchronize the florescent lights to eliminate the uncomfortable flashing.

Q Why does the image not refresh regularly?
A Some anti-virus programs will provide functions to filter the received web content. It will take time to perform the data examination and affect the streaming application such as Network Camera. However it only affects the HTP mode of Network Camera. If the network allows the HTTP mode only, disable the web filtering function of the anti-virus program temporarily. During the period, users should take the risk of malicious network activity.

Q I have opened motion detection windows but it cannot work.
A If the motion detection windows are setup and names are given, check if the function is checked at the first line. While it is enabled, adjust the sensitivity and percentage to monitor the level indicator if the threshold is appropriate.

Q I cannot hear any sound while watching.
A If there is "V_ONLY" shown above the image, click on connection type to uncheck "Disable audio". If there is "V" shown instead of "AV", the sound card in your PC may not properly installed. If "AV" is shown, check the audio source of Network Camera.

Q How many users are allowed to watch Network Camera at the same time?
A Too many users requesting the real-time multimedia content will digest the network. To achieve the best effect, Network Camera is designed to accommodate maximum ten users to watch and listen to Network Camera at the same time. It is recommended to

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build another web server to host a large quantity of users by retrieving contents from Network Camera periodically.

Q How fast is the video rate of Network Camera?
A The MPEG4 codec engine can process 30 frames per second internally. However the total performance is subject to many coefficients as follows:
1. Network throughput,
2. Bandwidth share,
3. Number of users,
4. The complicated objects and movement in view,
5. The level of your PC or notebook which is responsible for displaying images.
In general, the transfer rate in a general local network environment can achieve over 200 kilobytes per second and approximately 10 to 20 pictures of a normal environment per second.

Q How can I keep Network Camera as private as possible?
A Network Camera is designed for surveillance purposes and has many flexible interfaces. The user authentication and special confirmation in installation can keep Network Camera from unauthorized access. You may also change the HTTP port to non-public number. The demo account is good to separate guests from normal users and thus you can easily block guests anytime. You can check the system log to examine any abnormal activities and trace the origins.

Q Why can I not access Network Camera when I setup some options in the application?
A Since Network Camera is a "network camera", any incorrect network settings will make it unreachable. Once the system is missed due to wrong configuration, restore the factory default settings following procedures in Appendix A.

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C. URL commands of Network Camera

For some customers who already have their own web site or web control application, Network Camera can be easily integrated through convenient URLs. This section lists the commands in URL format corresponding to the basic functions of Network Camera.

Capture update Snapshot of JPEG image

/cgi-bin/video.jpg
Network Camera will return the most up-to-date snapshot in JPEG format.

Query status of the digital input

/cgi-bin/getdi.cgi
Network Camera will return the status of digital input.

Drive the digital output

/cgi-bin/setdo.cgi?do=<state>
, where state is H, L. H means NC connected with COMMON and L means NO connected with COMMON.
For instance, typing http://192.168.0.201/cgi-bin/setdo.cgi?do=h in address bar of the web browser will command Network Camera, with IP address of 192.168.0.201, set digital output to connect to NC with COMMON.

Restore factory default settings

/setup/restore.cgi
Network Camera will automatically restart after restoring factory default

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configurations.

Restart system

/setup/reset.cgi
Restart Network Camera without warning.

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Page URL

The configuration page has a frame layout including an option list frame and an option page frame. Referenced URLs, except for the configuration page, direct users to the option page frame only. Some pages, like image quality setting and preset setting, are opened in new windows for preview.

These URLs can be accessed only by administrators.

Homepage name	Referenced URL
connection type page	/client.html
configuration page	/setup/config.html
system option	/setup/system.html
security option	/setup/security.html
network option	/setup/network.html
video option	/setup/video.html
motion detection	/setup/motion.html
image quality option	/setup/image.html
application option	/setup/app.html
homepage layout option	/setup/layout.html
system log	/setup/logfile.html
system parameters	/setup/parafile.html
set factory default	/setup/factory.html

System resource URL

There are some images used on the homepage when the homepage layout is in image mode. Administrators may use the following links to show the images saved in Network Camera on another page.

Resource name	Referenced URL
system logo image	/pic/logo.gif
background image	/pic/wallppr.jpg

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General format of command URL

Every configuration can be set through URL with POST method by administrators only.

<general format>

URL[?[name=value][&name=value]……]

<method>

POST

<authorized user>

root

System configuration URL

URL: /setup/system.cgi

NAME	VALUE	DESCRIPTION
host	<text string shorter than 15 characters>	system name
Ledoff	yes	turn off front LED
	no	turn off front LED
method	keep	keep date and time unchanged
	auto	use NTP server to synchronize
	manu	directly adjust date and time
date	<yyyy/mm/dd>	year, month and date separated by slash
time	<hh:mm:ss>	hour, minute and second separated by colon
ntp	<domain name or IP address>	NTP server
zone	-12 ~ 12	time zone, 8 means GMT +8:00

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Security configuration URL

URL: /setup/security.cgi

NAME	VALUE	DESCRIPTION
rootpass	<text string shorter than 15 characters>	change root password
username	<text string shorter than 15 characters>	add new user
userpass	<text string shorter than 15 characters>	new user's password
deluser	<text string shorter than 15 characters>	existing user name
action	<blank>	validate demo users with “open”
open	yes	grant for demo account
	no	prohibit for demo account
dido	yes	permission for DIDO access
	no	prohibit for DIDO access

Network configuration URL

URL: /setup/network.cgi

NAME	VALUE	DESCRIPTION
reset	yes	enable installation at next boot
	no	disable installation at next boot
ip	<IP address>	Network Camera's IP address
subnet	<IP address>	subnet mask
router	<IP address>	default gateway
domain	<text string shorter than 40 characters>	domain name of Network Camera

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dns1	<IP address>	primary DNS server
dns2	<IP address>	secondary DNS server
smtp1	<domain name or IP address>	primary SMTP server
mailto1	<string shorter than 80 characters>	mail recipient address
smtp2	<domain name or IP address>	secondary SMTP server
mailto2	<text string shorter than 80 characters>	mail recipient address
returnemail	<text string shorter than 80 characters>	return email address
ftpp	<number less than 65535>	FTP port
ftp1	<domain name or IP address>	primary FTP server
ftpuser1	<text string shorter than 15 characters>	user name for primary FTP server
ftppass1	<text string shorter than 15 characters>	password for primary FTP server
ftpfolder1	<text string shorter than 40 characters>	upload folder in primary FTP server
ftp2	<domain name or IP address>	secondary FTP server
ftpuser2	<text string shorter than 15 characters>	user name for secondary FTP server
ftppass2	<text string shorter than 15 characters>	password for secondary FTP server
ftpfolder2	<text string shorter than 40 characters>	upload folder in secondary FTP server
http	<number less than 65535>	HTTP port
controlport	<number less than 65535>	control Channel port
videoport	<number less than 65535>	video Channel port
audioport	<number less than 65535>	audio Channel port
lowband	yes	optimal for the low bandwidth
	no	keep the original way

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Video configuration URL

URL: /setup/video.cgi

NAME	VALUE	DESCRIPTION
text	<text string shorter than 15 characters>	enclosed caption
size	1	half
	2	half x 2
	3	normal
color	B/W	monochrome
	<other than B/W>	color
quality	fixb	fix bit rate
	<other than fixb>	fix quantization
quan	1	lowest quality of video
	2	lower quality of video
	3	normal quality of video
	4	higher quality of video
	5	highest quality of video
bitrate	64000	set bit rate to 64K bps
	128000	set bit rate to 128K bps
	256000	set bit rate to 256K bps
	384000	set bit rate to 384K bps
	512000	set bit rate to 512K bps
	768000	set bit rate to 768K bps
	1000000	set bit rate to 1000K bps
	1200000	set bit rate to 1200K bps
frame	1	set maximum frame rate to 1 fps
	2	set maximum frame rate to 2 fps
	3	set maximum frame rate to 3 fps
	5	set maximum frame rate to 5 fps
	10	set maximum frame rate to 10 fps

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	15	set maximum frame rate to 15 fps
	20	set maximum frame rate to 20 fps
	25	set maximum frame rate to 25 fps
	30	set maximum frame rate to 30 fps
mode	50Hz	synchronize with 50Hz utility
	60Hz	synchronize with 60Hz utility
wb	1	auto white balance
	2	fixed indoor(2800K)
	3	fixed fluorescent 1(3600K)
	4	fixed fluorescent 2(4000K)
	5	fixed outdoor(6000K)
flip	yes	flip image
	no	normal image
mirror	yes	mirror image
	no	normal image

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Image quality configuration URL

URL: /setup/image.cgi

NAME	VALUE	DESCRIPTION
brightness	<-5 ~ 5>	adjust brightness of image
contrast	<-5 ~ 5>	adjust contrast of image
hue	<-5 ~ 5>	adjust hue of image
saturation	<-5 ~ 5>	adjust saturation of image
preview	<not required>	not save the parameters
restore	<not required>	recall the original settings
save	<not required>	save the parameters

Application configuration URL

URL: /setup/app.cgi

NAME	VALUE	DESCRIPTION
emode	<not required>	event mode application
smode	<not required>	sequential mode application
smethod	mail	upload snapshots by email
	ftp	upload snapshots by FTP
suffix	<not required>	FTP file with date and time suffix
delay	<integer>	seconds delay to detect next event
inter	<integer>	seconds delay to capture post-event
dihigh	< not required >	set DI high as trigger condition
dilow	< not required >	set DI low as trigger condition
dirise	< not required >	set DI rising as trigger condition
difall	< not required >	set DI falling as trigger condition
motion1	< not required >	set motion window1 as trigger condition
motion2	< not required >	set motion window2 as trigger condition

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motion3	< not required >	set motion window3 as trigger condition
ioalarm	< not required >	trigger DO when DI condition matched
mdalarm	< not required >	trigger DO when motion detected
ioupload	< not required >	upload snapshot when DI condition matched
mdupload	< not required >	upload snapshot when motion detected
sinter	<integer>	seconds interval for sequential mode
sbegin	<hh:mm:ss>	time to start sequential mode
send	<hh:mm:ss>	time to stop sequential mode

Homepage layout configuration URL

URL: /setup/layout.cgi

NAME	VALUE	DESCRIPTION
cuslogo	blank	hide logo
	def	use default logo
	url	use image from URL
logourl	<text string shorter than 80 characters>	URL of image for logo
linkurl	<text string shorter than 80 characters>	URL to link when clicking on logo
cusback	blank	hide background image
	def	use default background
	url	use image from URL
backurl	<text string shorter than 80 characters>	URL of image for background
fcolor	<0 ~ 15>	color index for font
bcolor	<0 ~ 15>	color index for background

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D. Technical specifications

- System
CPU: Trimedia PNX1300
RAM: 8MB SDRAM
ROM: 2MB FLASH ROM

- Networking
Protocol
TCP/IP, HTTP, SMTP, FTP, Telnet, NTP, DNS and DHCP
Physical
10BaseT Ethernet or 100BaseT Fast Ethernet

- Video
Algorithm supported
MPEG4(short header mode)
Features
Adjustable image size, quality and bit rate
Timestamp and text overlay
3 motion detection windows
Resolution
Up to 30/25 frames at 160x120
Up to 30/25 frames at 320x240

- Camera Specification
1/3 inch color CMOS sensor
640 x 480
2.5Lux / F1.4
AGC, AWB
Electronic shutter: 1/60 – 1/15,000 sec

- Lens
Standard CS mount type lens, 6.0mm, F1.8

- Audio
24Kbps, 8Kbps(optional)

- Microphone
Omni-directional
Frequency: 50 – 16000Hz
S/N ratio: more than 60dB

- General I/O
1 sensor input(max. 12VDC 50mA)
1 relay output(max. 24VDC 1A, 125VAC 0.5A)

- LED indicator
Dual color status indicator

- Dimension
138mm(L) * 88.9mm(W) * 57.2mm(H)

- Weight
NET. 222g

- Power
Consumption: near 4.4W
Universal switching power supply included
Input: 100-240VAC, 50/60Hz, 0.4A
Output: 12VDC, 1.5A

- Operating Environment
Temperature: 0-50°C/32-122°F
Humidity: 95%RH

- EMI & Safety
CE, FCC, BSMI

- Viewing system requirement
Operating system
Microsoft Windows
Browser
Internet Explorer 5.x or above

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Electromagnetic Compatibility (EMC)

USA - This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a partial installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the seperation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits.

Europe CE - This digital equipment fulfills the requirement for radiated emission according to limit B of EN55022/1998, and the requirement for immunity according to EN50082-1/1992.

Liability

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